

XXV.—On South African Bees, chiefly collected in Natal,

by

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MEGACHILE RHODESICA, sp. nov.

♀. Length about 10 mm. ; black, with the general appearance of *M. venusta* ; hair of head and thorax above pale ochreous, darkest on vertex, but nowhere fuscous or black ; face, cheeks, pleura and metathorax with long white hair, first abdominal segment with long creamy-white hair, the sides of first segment, and extreme lateral margins of second and third, with the tegument red ; abdominal segments with linear dull white hair-bands, the second with wholly pale hair before the band, the others with scanty short black hair, the sixth segment with pale tomentum and short black hair : ventral scopa white on first two segments, then clear orange-ferruginous, black or dark fuscous on last segment. Eyes pale pea green ; mandibles quadridentate, obscure reddish subapically, the base with white tomentum ; clypeus and supraclypeal area rather elevated in middle, roof-like, but not keeled, broadly polished and impunctate in middle, the whole covered by long hairs which converge toward the middle from each side ; flagellum rather long, very obscurely reddish beneath ; mesothorax and scutellum dull and finely roughened ; tegulae testaceous ; wings hyaline, faintly brownish, stigma ferruginous, nervures dark ; legs dark castaneous or partly piceous ; hair of legs white ; hind basitarsi not much broadened, not so broad as tibia.

Bulawayo, Rhodesia, 23rd September, 1918 (E. C. Chubb). Three specimens.

MEGACHILE NATALICA, sp. nov.

♀. Length 10-10.5 mm. ; black, similar to *M. rhodesica*, but a little more robust ; eyes dark brown or black ; vertex with fuscous or reddish fuscous hair ; legs black ; red hair of scopa very bright, and black on last segment intense ; abdominal bands clear white. Very close to the last ; possibly a sub-species, but no intermediates are known.

Type from Winklespruit, Natal, 4th January, 1919 (C. N. Barker). Also from Bluff, Durban, 23rd February, 1907 (C. N. Barker).

MEGACHILE FUNEBRIS, Radoszkowski.

Karkloof, January, 1918 (E. E. Platt); Pinetown, 19th October, 1916 (H. W. Bell Marley).

MEGACHILE FLAVESCENS, Friese.

Doonside 6th January, 1917 (L. Bevis); Umbilo, 25th February, 1917 (L. Bevis); Durban, March, 1916 (E. C. Chubb).

MEGACHILE UMBILOENSIS, sp. nov.

♀. Length about 9 mm.; black, with white hair, but vertex and scutellum with much long dark fuscous hair, and mesothorax with a few dark hairs; ventral scopa white on basal half, bright ferruginous beyond, but black at end; mandibles quadridentate, the teeth low; clypeus minutely rugoso-punctate, with a median smooth band; eyes dark brown; antennæ entirely dark; mesothorax and scutellum finely and extremely densely punctured, but glistening between the punctures; tegulæ black; wings hyaline, very faintly greyish; nervures and stigma black, the stigma obscurely reddish in middle; legs with white hair, pale yellowish on inner side of tarsi; hind basitarsi; moderately broadened; abdomen with distinct white hair-bands, but that on first segment linear and subobsolete; sixth segment with black hair, and no pale tomentum.

Umbilo, 18th February, 1917 (L. Bevis). Resembles *M. venustella* Ckll., but smaller, with dark tegulæ, and very much more finely sculptured clypeus.

MEGACHILE STELLARUM, sp. nov.

♀. Length 11.5 mm.; black, with white hair, but that on upper part of front, and upper part of sides of thorax, stained with yellow, while the vertex, mesothorax and scutellum have dark reddish-fuscous hair, long on vertex, short and scanty on mesothorax (which has pale hair in front), and not very long on scutellum; ventral scopa coloured as in *M. umbiloensis*, except that it is white in middle of fourth segment, and black at sides of fifth; mandibles quadridentate; sides of face with long dense white hair, but clypeus with short thin reddish hair, its surface densely and coarsely punctured, without a smooth line, but upper and lower margins narrowly smooth; supra-clypeal area with a smooth and polished space just above clypeus; antennæ black; vertex coarsely punctured; mesothorax and scutellum finely and extremely densely punctured, but glistening

between the punctures; tegulæ rufofuscous with a broad pallid margin; wings dusky, greyish; legs with white hair, ferruginous on inner side of tarsi; middle basitarsi on outer side densely covered with silky white hair, and with a white fringe behind; hind basitarsi not as broad as titræ; spurs ferruginous; abdomen with conspicuous creamy-white hair-bands, sixth segment with black hair.

Stella Bush, Durban, 21st January, 1917 (C. N. Barker). The entire abdominal bands distinguish it from *M. venustoides*, Strand, which also has the hair of the face brassy-yellow.

MEGACHILE TARSISIGNATA, sp. nov.

♂. Length 10·5–11·5 mm.; black, including antennæ, but last tarsal joint (and the one before more or less) red; face and front densely covered with white hair, the lower half creamy; clypeus glistening, but extremely finely and closely punctured, without a smooth line; flagellum long and slender; vertex with ochreous hair; thorax above with pale ochreous hair, beneath with white; tegulæ ferruginous; wings dusky hyaline, brownish; stigma ferruginous nervures fuscous; legs with white hair, long and abundant on under side of anterior and middle trochanters and femora; anterior coxal spines broad, dentiform, only moderately long; anterior tarsi; broadened, with a large thick white fringe behind; first three joints white posteriorly, but anteriorly black, the basitarsus with a very large dark lobe concave within, and covered on outer side with long hair; middle tarsi with dense white hair, forming a conspicuous fringe behind; hind tarsi broad, the hair on inner side ferruginous; abdomen densely covered with orange-fulvous tomentum, except that segments 2 to 4 have a transverse bare band; keel of sixth segment crenate, and with a small median notch; venter with broad white hair-bands.

Two from Umbilo, 7th February, 1917 (L. Bevis). The cotype is conspicuously broader and more robust than the type, but they are certainly one species. Closely resembles *M. flavescens*, Friese, but known at once by the anterior tarsi.

MEGACHILE BEVISI, sp. nov.

♂. Length about 11·5 mm.; rather long and narrow; black, with the first abdominal segment (except a broad apical band not reaching sides), spot or mark on each side of segments 2 to 4 (and extreme base more or less), anterior femora and tibiæ in front, anterior tarsi and middle femora more or less, ferruginous; face and front densely

covered with creamy-white hair, cheeks below with pure white; apical tooth of mandibles long and sharp; flagellum very obscurely reddish beneath; hair of vertex very slightly fuscous; thorax with very pale yellowish-tinted hair above, white below, on scutellum and disc of mesothorax the hair is faintly tinged with fuscous; tegulæ bright ferruginous; wings hyaline, the outer border pale brownish; stigma dark reddish, nervures piceous; anterior tarsi almost simple, but with a rather long white fringe behind; anterior coxæ with short slender spines; middle tarsi covered with long shining silky white hair; spurs red; abdomen with pale ochreous hair on first segment; segments with apical slightly creamy hair-bands, and narrower whiter bands along the subbasal grooves; disc of second segment with ochreous hair, of third to fifth with black hair; sixth segment, except the keel, densely covered with appressed pure white hair; keel of sixth segment rounded, minutely subcrenulate, with a broad but not deep median notch; beneath are four short red spines.

Doonside, 6th January, 1917 (A. L. Bevis). The general appearance is very like that of *M. damaraënsis* Friese, but that has only the fifth abdominal segment with black hair on disc.

MEGACHILE BARKERI, sp. nov.

♂. Length about 8 mm.; black, of the short and broad type; antennæ long, entirely black; mandibles with a red subapical spot; anterior femora and tibiæ red in front; hair of head and thorax mainly fulvous, pale golden on face, long and white on under side of head and thorax, long and black on vertex, strongly mixed with black on mesothorax, but not scutellum; vertex glistening, but mesothorax and scutellum entirely dull; tegulæ piceous; wings dusky, stigma and nervures black; anterior coxæ with short spines, hidden by hair; anterior tarsi long and simple, but hairy; with the first two joints pallid apically; hair of legs very pale yellowish; spurs cream-color; first abdominal segment with long fulvous hair, second to fifth with black hair, but with narrow even cream-coloured apical hair-bands; sixth segment densely covered with cream-coloured tomentum, the keel very broadly but shallowly excavated in middle, with a couple of little teeth on each side of the excavation.

Durban, 3rd March, 1918 (C. N. Barker).

MEGACHILE HETEROTRICHA, sp. nov (*barkeri* var ?)

♂. Length about 8.3 mm.; very like *M. barkeri*, but with hair of mesothorax all fulvous; apical emargination of abdomen (keel of

sixth segment) much narrower, with nearly the form of a half-circle; very likely not more than a variety of *M. barkeri*.

Doonside, 5th January, 1917 (A. L. Bevis). A close examination shows a few hairs in middle of mesothorax darker than the rest, indicating a slight approach toward the *barkeri* character. If the two are one species, *heterotricha* is probably a mendelian recessive.

The following key separates the species of *Megachile* (including *Gronoceras*) in the last sending:

- Length 20 mm. or more; thorax with black hair, abdomen covered with red hair.....*Gronoceras bombyformis* (Gerst.) ♀.
 Much smaller; or if large, abdomen not red.....1.
1. Abdomen with conspicuous lateral patches of white tomentum, but not banded; large species, about 16 mm. long; ventral scopia red.....*Megachile funebris* Rad.
 Not so.....2.
2. Thorax above and at sides with black hair, abdomen with red.....3.
 Abdomen not red haired; or if so, thorax not thus black haired.....4.
3. Females; ventral scopa red, clypeus keeled...*fervida* (Smith).
 Males; face with ochreous hair.....*fervida* (Smith).
4. Large species, 16 mm. long or over; abdomen grey with paler bands, the base sometimes red-haired.....5.
 Smaller species, 14 mm. long or less.....6.
5. Male with long spine at end of abdomen, and no red hair at base (Durban, March, 1916, E. C. Chubb).....
*Gronoceras felina* (Gerst).
 Male without long spines at end of abdomen: hair at extreme base of abdomen red...*Megachile cyanura*, sp. nov.
 Female with red hair at base of abdomen; head with black hair; ventral scopa soot-colour.....*cyanura*, sp. nov.
6. Females; hair of face white or cream-colour.....7.
 Males.....14.
7. Abdomen red-haired above, and the tegument also largely red (Winklespruit, Natal, 23rd and 29th December, 1918, and 15th January, 1919, C. N. Barker; Durban, 12th April, 1918, C. N. Barker).....*melliferina*, Ckll.

- Abdomen with red hair at base only, and tegument not red.....*vittatula*, sp. nov.
- About 13 mm. long, with shining finely punctured mesothorax; tegulae dark reddish; hair of abdomen evidently reddish, but nearly all worn away. (Malvern, Natal, April, 1916, C. N. Barker; St. Lucia Bay, Zululand, November, 1918, H. W. Bell Marley).....sp. (condition too bad to identify, but species unknown to me).
- Abdomen without red hair or tegument above8.
8. Length about 13. mm.; tegulae bright ferruginous; mesothorax dull.....*opacula*, sp. nov.
- Smaller; or tegulae dark.....9.
9. Length about 9 mm.; tegulae black; vertex and scutellum with much black hair.....*umbiloensis*, sp. nov.
- Larger; or if nearly as small, tegulae testaceous.....10.
10. Hair of metathorax and base of abdomen yellow.....*flavibasis*, sp. nov.
- Hair of metathorax white.....11.
11. Ventral scopa white at sides and red in middle, except on last segment, where it is black; scutellum with many long black hairs (Krantz Kloof, 8th October, 1916, H. W. Bell Marley; Pinetown, 26th November, 1916, H. W. Bell Marley).....*venustella*, Ckll.
- Ventral scopa at least partly red at sides, but white basally..... 12.
12. Sixth abdominal segment without white tomentum, but black hair; ventral scopa black on last; scutellum with rather short dark fuscous hair.....*stellarum*, sp. nov.
- Sixth abdominal segment with white tomentum.....13.
13. Eyes green.....*rhodesica*, sp. nov.
- Eyes dark brown or black..... *natalica*, sp. nov.
14. (Males). Anterior tarsi modified (merely thickened, red and fringed in *bevisi*).....15.
- Anterior tarsi simple..... 17.

15. Anterior tarsi dark, the basitarsus only somewhat expanded; abdomen with reddish hair at base, and grey bands beyond... *vittatula*, sp. nov.
Anterior tarsi at least partly pallid, and with much white hair.....16.
16. Anterior basitarsi white, with a very dark large lobe.....
.....*tarsisignata*, sp. nov.
Anterior tarsi pallid, the basitarsi with a large dark spot at base posteriorly; tegument of abdomen varying from black to largely red... ..*flavescens* Friese.
Anterior tarsi entirely ferruginous, thickened but little modified, with a long white fringe behind—*bevisi*, sp. nov.
17. Fifth abdominal segment covered with fulvous tomentum; anterior femora partly red.....*flavibasis*, sp. nov.
Fifth abdominal segment at least mainly bare and black...18.
18. Larger; tegulae red.....*opacula*, sp. nov.
Smaller (hardly 9 mm.); tegulae dark.....19.
19. Vertex and mesothorax with much black hair.....
.....*barkeri*, sp. nov.
Vertex with black hair, mesothorax with fulvous.....
.....*heterotricha*, sp. nov. (*barkeri* var.).

TRIGONA, Jurine.

TRIGONA CLYPEATA, Friese.

Bulawayo, Rhodesia, 18th September, 1910 (E. C. Chubb).

TRIGONA DENOITI, Vachal (*zebra*, Friese).

Bulawayo, Rhodesia, 18th September, 1910 (E. C. Chubb).

Meade-Waldo (1913) indicated the identity of *T. clypeata* with *T. denoiti*, but Vachal's species with the orange fulvous, black banded, abdomen, the *T. clypeata* var. *zebra* Friese. In Proc. U.S. Nat. Museum, 55 (1919), p. 211, I treated *zebra* as a distinct species, but it is perhaps after all only a dimorphic (dischroic) form of *clypeata*, as would be suggested by the fact that Mr. Chubb took both at Bulawayo on the same day. In that case, since Vachal's name has priority, the form with entirely black abdomen will be *T. denoiti* var. *clypeata* (Friese).

NOMIA, Latreille.

NOMIA STRENUA, Cameron.

The male averages a little larger than 13 mm., Meade-Waldo's measurement; the abdomen varies from very dark reddish to reddish-black. The wings are strongly darkened apically. The female is very similar, except for the usual sexual differences. Its abdomen is strongly reddened apically, and the venter is clear ferruginous; the face is covered with appressed white hair, but on the labrum it is golden; mesothorax coarsely and closely punctured, scutellum less closely, with a polished area on each side of disc; scape very long; flagellum red at apex; extreme base of abdomen with stiff erect pale golden hair; tibial scopa pale reddish, dark fuscous basally above.

Both sexes from Stella Bush, 12th December, 1916, "nesting in ground, making a hole near paths, with a mound of earth above hole." (H. W. Bell Marley). Male also from Durban, December, 1916 (H. W. Bell Marley).

NOMIA TRIDENTATA NATALENSIS, Cockerell.

Male from Winklespruit, Natal, 20th December, 1918 (C. N. Barker). The female, not previously known, comes from Malvern, March, 1916 (Barker), and Bluff, Durban, 28th January, 1917 (Barker). The female is very like *umbiloensis* and *perornata*; the three may be separated thus:

- Disc of first abdominal segment closely punctate..... *umbiloensis*.
 Disc of first segment dull and impunctate.....1.
 1. Wings conspicuously darkened at apex; abdomen with three orange-fulvous bands..... *perornata*.
 Wings little darkened at apex; abdomen with three dull whitish bands..... *natalensis*.

The hind tibiae of *perornata* are clear red, which is not at all the case in *natalensis*.

NOMIA ERYTHROPTERA, sp. nov.

♀. Length a little over 10 mm., anterior wing 9 mm.; head and thorax black; legs dark brown, the anterior ones more nearly black; abdomen shining, bright ferruginous, base of first segment black, no hair-bands, apex of abdomen with dark fuscous hair; wings dilute fuliginous, strongly reddened; tegulae piceous with a rufous spot.

Similar to *N. fausta* (Smith), but larger, with redder wings, and basal area of metathorax rugose, not shining. It also differs in the very broad second submarginal cell.

Malvern, Natal, 22nd December, 1915 (C. N. Barker).

NOMIA DURBANENSIS, sp. nov.

♀. Length about 7 mm.; black, with the hind tibiæ, and all the tarsi, dull ferruginous, but the red color largely concealed by white hair; head broad; hair of sides of face clear white (yellowish in *N. megalepis*); apical half of flagellum red beneath; clypeus and supraclypeal area closely and very distinctly punctured, but shining; mandibles dark red subapically; prothorax (with tubercles) densely covered with creamy-white or fulvescent hair: mesothorax dullish, with excessively minute well separated punctures, and widely scattered much larger ones; base of metathorax with a narrow transverse channel, dullish but hardly ridged; tegulæ very large, expanded behind, brown anteriorly, posteriorly whitish; abdomen with broad greyish hair-bands at basis of segments 2 to 4, and narrower ones in transverse sulci; first segment with an eye-shaped patch of white tomentum on each side; fifth segment fringed with pale brown hair. Very close to *N. megalepis*, Ckll., but more slender; with white hair on face, and darker, shorter stigma. Also related to *N. tegulata* Smith, described from Sierra Leone. Possibly the Durban (Meade-Waldo, 1916) record of *tegulata* refers to this or *megalepis*. True *tegulata* has pale fulvous hair on hind tibiæ; as in *megalepis*; in *durbanensis* it is white.

Durban, 26th August, 1916 (C. N. Barker). Two specimens.

It is possible that *N. megalepis* may prove identical with *N. tegulata*, but it is certainly distinct from the supposed *tegulata* described by Vachal.

NOMIA CLARIPES, sp. nov.

♂. Length 9.5-10 mm.; black, with broad abdomen, the pubescence pale fulvous, light golden on face; head broad, mandibles pale yellow basally, red subapically, black at tip; scape red, flagellum black above and clear red below; mesothorax very hairy, very densely punctured, glistening between the punctures; mesothorax hairy, the transverse basal sulcus crossed by strong ridges; tegulæ rather large, light ferruginous; wings dusky hyaline, yellowish, not distinctly darkened apically; stigma and nervures ferruginous; basal

nervure little bent; femora, tibiæ and tarsi clear light ferruginous, the anterior and middle femora blackened basally behind; hind legs quite unmodified; abdomen with erect pale fulvous hair, and broad pale ochreous hair-bands on hind margins of segments: first two segments dull, with the surface appearing coarsely granular, but basal sulcus of second shining; the other segments shining; apical plate red; venter largely red.

Type from Bluff, Durban, 25th March, 1917 (C. N. Barker). Also two from Durban, 2nd April, 1918 (C. N. Barker). The colour of antennæ and wings readily separate it from *N. rubripes* Friese, which it resembles in the red legs.

NOMIA NITIDIBASIS, sp. nov.

♀. Length about 12 mm., with very bright and dense ferruginous hair covering thorax above; wings hyaline, the apical margin faintly infuscated; stigma and nervures dull brown; tegulæ clear ferruginous; abdomen with four broad hair-bands, the first two fulvous, the third white at sides and pale fulvous in middle, the fourth pure white; heavy fringe on fifth segment and apex dark chocolate. Looks exactly like *N. vulpina umbiloensis*, but readily separated by the shining abdomen, the first segment especially polished and brilliant; it also differs by the stigma being heavily bordered by dark fuscous, the knees not red, and the hind tibiæ beneath with a loose curled beautifully plumose white scopa.

Two from Durban, 9th and 23rd March, 1918 (C. N. Barker).

NOMIA PLATYCEPHALA, Cockerell.

The female from Winklespruit, 23rd December, 1918 (C. N. Barker), is very like the male, but the head is not so broad. The hind tibiæ have long pale fulvous hair on inner side, but some fuscous hair on outer face, while the curled scopa beneath is creamy-white. The venter of the abdomen has pale reddish hair. The tongue is long and slender.

NOMIA MURINELLA, sp. nov.

♀. Length about 8 mm.: superficially just like *N. platycephala*, but differing thus: face narrower below; tongue much shorter; paraglossæ with long hairs; palpi shorter, last two joints of labial palpi short (long and slender in *platycephala*); scutellum and middle

of postcutellum with red hair; stigma not so dark; second submarginal cell smaller; abdomen dull, the first segment (except depressed margin) entirely dull and impunctate.

Durban, 11th March, 1917 (E. C. Chubb).

The following key separates the species of *Nomia* in the last sending:

- Abdomen mainly or wholly red1.
 Abdomen not red (very dark reddish in *strenua*).....4.
1. Abdomen very coarsely punctured, at least on first two segments.....2.
 Abdomen finely punctured.....3.
2. Anterior wing about 10 mm. long; hind basitarsi of ♂ red. (Winklespruit, Natal, 31st December, 1918, C. N. Barker).
*rubella*, Smith.
 Anterior wing about 7.5 mm. long; ♀. Durban, 10th February, 1918, C. N. Barker; Bluff, Durban, 20th March, 1917, C. N. Barker)....*serratula*, Smith (variety).
3. Larger; wings strongly reddened*erythroptera*, sp. nov.
 Smaller; wings grey (Winklespruit, 4th January, 1919, 31st December, 1918; Durban, 4th May, 1918; Bluff, Durban, 28th January, 1917; all C. N. Barker).....
*fausta*, (Smith)
4. Larger species; anterior wing 10-11 mm.....5.
 Smaller.....6.
5. Hind margins of abdominal segments with broad ivory-color or yellowish tegumentary bands; males. (Krantz Kloof, 14th February, 1917, H. W. Bell Marley; St. Lucia Bay, Zululand, November, 1918, H. W. Bell Marley).....*speciosa*, Friese
 Hind margins of abdominal segments dark; apical joint of male antennæ enlarged.....*strenua*, Cameron
6. Small slender species, expanse about 14 mm.; base of abdomen very strongly punctured.....7.
 Otherwise.....8.
7. Tegulæ small and black (Umbilo, 4th February, 1917, L. Bevis; Durban, 1st April, 1917, C. N. Barker).....
*serratula*, Smith.

- Tegulae very large (Malvern, April, 1916, C. N. Barker ; Umbilo, 7th February, 1917, L. Bevis.....*bevisiana*, Ckll.
8. Tegulae greatly enlarged ; small species.....9.
Tegulae not enlarged.....10.
9. More robust ; hair of face yellowish ; flagellum dark, dusky reddish beneath (Malvern, April, 1916, C. N. Barker).
.....*megalopsis*, Ckll.
Less robust ; hair of face white ; apical half of flagellum red beneath.....*durbanensis*, sp. nov.
10. Legs clear red except at base, males.....*claripes*, sp. nov.
Legs at least mainly dark.....11.
11. Males12.
Females.....13.
12. Hind femora with three large teeth beneath (Winklespruit, 20th December, 1918, C. N. Barker.....*tridentata natalensis*, Ckll.
Hind femora high-conical ; hind tibiae with an enormous flattened lobe ; flagellum bright-ferruginous beneath (Durban, 10th February, 1917, C. N. Barker).....*vulpina umbiloensis*, Ckll.
Hind legs simple ; head broad ; antennae short as in a ♀. (Winklespruit, 3rd January, 1919, 24th December, 1918, C. N. Barker).....*platycephala*, Ckll.
13. End of abdomen with conspicuous orange-fulvous hair (Durban, 16th March, 1918, 8th December, 1918, C. N. Barker ; Bluff, Durban, 20th March, 1917, C. N. Barker ; Winklespruit, 10th January, 1919, C. N. Barker ; Eshowe, December, 1916, Marley).....*pyrura*, Ckll.
End of abdomen without such hair.....14.
14. Tegulae piceous ; smaller species.....15.
Tegulae ferruginous ; larger species16.
15. Second abdominal segment shining ; scutellum with hair partly fuscous, not red.....*platycephala*, Ckll.
Second abdominal segment dull ; scutellum with red hair.
.....*murinella*, sp. nov.
16. First abdominal segment shining.....*nitidibasis*, sp. nov.
First abdominal segment dull.....*tridentata natalensis*, Ckll.

ANTHIDIINAE.

The classification of the Anthidiine bees is a matter of some difficulty, owing to the uncertainty whether the presence of certain characters always indicates real affinity, or may be due to quite independent evolution. Friese, when describing the sub-genus *Pachyanthidium* (1905), included ten species, of diverse appearance. The first of them, *A. bicolor* Lepeletier, may be designated as the type. It is a thick set bee, with black thorax and entirely red abdomen; the second recurrent nervure goes beyond the end of the second submarginal cell, and the feet are without pulvilli. The scutellum has a sharp projecting edge, without any emargination. *Hypanthidium*, Ckll (1904), was based on South American species with the appearance and venation of *Dianthidium*, but without pulvilli. It is widely distributed in the Neotropical region, and I have described one (*H. salemense*) from India. Some of the South African species appear to fall in *Hypanthidium*, but may not be genetically connected with the Neotropical ones. They are perhaps more related to *Pachyanthidium*, though very unlike the type of that group. *Dianthidium* has a pulvillus on each foot, in the manner of the Osmiines, and constructs its nest with resin. It is an ancient type, well differentiated in the Miocene rocks of Colorado, and no doubt *Hypanthidium* and *Pachyanthidium* may be considered derivatives from it. All the Anthidiines discussed below have the second recurrent nervure going beyond the end of the second submarginal cell.

DIANTHIDIUM, Cockerell.

DIANTHIDIUM MELANOCEPHALUM, sp. nov.

♀. Length about 6.6 mm.; black, with no yellow markings except on the abdomen, where they consist of a spot on each extreme side of first and second segments, a pair of very small transverse elongated spots subdorsally on third, two large transverse subdorsal marks on fourth, a broad narrowly interrupted band on fifth, and whole disc of sixth except at sides. Head and thorax densely and coarsely punctured, with very short thin dull white hair; facial quadrangle much broader than long; mandibles and antennae black; tegulae large, black, well punctured; wings strongly dusky; scutellum projecting, sharp-edged, shallowly emarginate; ventral

scopa white, tinged with pale fulvous in middle; hind basitarsi short and broad: pulvilli present.

Three from Bluff, Durban, 13th and 28th January, 1917 (C. N. Barker).

DIANTHIDIUM SPILOTUM, sp. nov.

♂. (Type). Length about 7 mm.; black, robust, head and thorax with white hair, on vertex and dorsum of thorax thin and tinged with ochreous; mandibles cream-colour with the bidentate apex black; the cream-coloured face-markings including clypeus, except upper margin (the upper edge of the light area trilobed), a round spot beneath each antenna, and large cuneiform lateral marks; antennæ black; head and thorax very densely punctured; scutellum projecting, shallowly emarginate; tegulæ large, copper-red, closely punctured; wings dusky, thorax all black except two short obscure lines on hind margin of scutellum; femora black with red knees, the anterior and middle femora mainly red in front; anterior and middle tibiæ red in front on inner side, and at apex, hind tibiæ mainly black; basitarsi mainly yellowish, the small joints reddish, anterior and middle tarsi with a dense fringe of white hair behind; abdomen closely punctured, with a large cream-coloured spot on each side of first two segments, third on each side with a lateral dot and sub-lateral dash, fourth with lateral dots and a pair of very large transverse marks on disc, fifth with a broad band (emarginate in middle, and not reaching sides of segment), sixth nearly all pale, but seventh brown; sixth segment without lateral teeth; seventh broad, tridentate, the middle tooth small.

♀. Similar, but face all black except lateral marks, which are subquadrate below, with a linear extension along orbits more than half-way up front; mandibles black, with a small basal pale yellow spot; lines on edge of scutellum as in male; hind legs ornamented, the tibia on outer side with a very large oval black area, bounded at each end by cream-colour, the whole on a red ground; hind basitarsi with a large cream-coloured area with a dark edge; light abdominal marks smaller, third segment with only a pair of dots; ventral scopa pale fulvous, white at sides. Pulvilli present.

Both sexes from Karkloof, January, 1918 (E. E. Platt). The female is easily known from that sex of *D. zebra* (Friese) by the black clypeus, lack of yellow marks at sides of mesothorax and on axillæ, etc.

HYPANTHIDIUM, Cockerell.

Species without pulvilli on feet.

HYPANTHIDIUM CORDATUM (Smith).

Male from Winklespruit, 21st December, 1918 (C. N. Barker); female from same locality and collector, but 23rd December, 1918. I have compared the male with one from F. Smith's collection.

HYPANTHIDIUM COMPACTUM (Smith).

Eshowe, December, 1916 (H. W. Bell Marley). ♀.

HYPANTHIDIUM ANGUSTIFRONS, sp. nov.

♂. Length about 6 mm.; black, with bright chrome yellow markings, which include mandibles (except the tridentate apex) all of clypeus, broad lateral face-marks ending abruptly just below level of antennæ, band on occiput, large spot on tubercles, comma-shaped spot on tegulæ, entire axillæ, very broad posterior corners of the projecting scutellum (narrowing toward the middle where briefly interrupted), greater part of legs (including entire outer surface of tibiæ), and broad bands on abdomen (lacking middle third on first two segments, broadly interrupted on third, narrowly on fourth, with linear interruption on fifth, sixth all yellow except lateral bases, and seventh yellow); scape with nearly apical half yellowish-red on outer side; flagellum dark reddish beneath; tegulæ piceous except the yellow mark; wings dusky; scutellum projecting and sharp-edged, with rectangular corners; seventh abdominal segment truncate and simple, but two little dentiform projections from beneath its margin.

Malvern, Natal, March, 1916 (C. N. Barker). Resembles *H. truncatiforme* (*Dianthidium truncatiforme*, Ckll), which also lacks pulvilli.

The following key separates the above Anthidiine bees:

- | | | |
|--|-------------------------------------|----|
| Tegument of face entirely black, but abdomen with yellow markings..... | <i>D. melanocephalum</i> , sp. nov. | ♀. |
| Tegument of face partly light..... | | 1. |
| 1. Clypeus entirely black..... | <i>D. spilotum</i> , sp. nov. | ♀. |
| Clypeus largely or wholly pale..... | | 2. |

2. Tibiæ mainly black on outer side; where not black, dull ferruginous.....*D. spilotum*, sp. nov. ♂.
Tibiæ yellow on outer side.....3.
3. Clypeus broader than high.....*H. cordatum* (Sm.) ♂, ♀.
Clypeus higher than broad.....4.
4. Larger; scutellum entirely black...*H. compactum* (Sm.) ♀.
Smaller; scutellum with much yellow.....
.....*H. angustifrons*, sp. nov. ♂.

When treating of *Hypanthidium*, the following specimens were overlooked:

H. compactum (Sm.) Males from Durban, 22nd September, 1918 (C. N. Barker), and Umbilo, 25th March, 1917 (L. Bevis). The male runs to the same place in the table as the female.

H. angustifrons, Ckll. Male from Umbilo, 14th February, 1917 (L. Bevis). The thoracic and abdominal markings are reddened by cyanide. The front legs are extended, showing well the extremely long fringe of white hair on anterior tarsi posteriorly.

STRANDIELLA, Friese.

STRANDIELLA PALLIDIPENNIS, sp. nov.

♂. (Type). Length about 8 mm.; slender, black, mesothorax and abdomen polished and shining; head thick, a little broader than long; mandibles black, dark red at apex; face and cheeks with long white hair; antennæ rather short and thick, flagellum bright ferruginous beneath; front dull and densely punctured; thorax with white hair: mesothorax smooth, with sparse weak punctures; metathorax hairy, the basal area large and dull; tegulæ reddish testaceous; wings hyaline, with a diffused brown cloud beyond the third discoidal cell; stigma and nervures ferruginous; femora black with pale knees; anterior tibiæ in front yellow suffused with reddish; middle and posterior tibiæ with yellow basal mark and apex; all the tarsi yellow, the small joints suffused with reddish; abdomen slender, without evident punctures and without hair-bands, but hind margins of first two segments rather broadly ferruginous, of the others very narrowly more or less pallid.

♀. Length about 8.5 mm.; similar to the male but more robust; second joint of maxillary palpi fully as long as next two together, the last four joints reddened and subequal; anterior knees and tibiæ

in front rather dull reddish; tarsi reddish-brown; hind femora and tibiæ with a large yellowish-white scopa; only first abdominal segment with a red margin.

Two females and a male from Bulwer (W. J. Haygarth).

The following key separates the described species of *Strandiella*, all of which are South African:

- Black, with at most a red margin to one or more of the abdominal segments.....1.
 Abdomen with at least some segments mainly red.....5.
1. Flagellum clear ferruginous beneath except at base; male antennæ short for that sex; length of insect less than 9 mm.2.
 Flagellum dark, sometimes brown beneath apically; insect often longer than 9 mm.....3.
2. Wings dark fuliginous (Willowmore, Cape Colony).....
 *ruficornis*, Ckll
 Wings pale..... *pallidipennis*, sp. nov.
3. 10 mm. long, with brown wings; scopa of legs yellowish-brown, blackish-brown above..... *fuscipennis*, Friese.
 Wings hyaline or somewhat dusky.....4.
4. 9-10 mm. long.....*longula*, Friese (Type of genus).
 8 mm. long, with more shining abdomen; antennæ of male relatively long, reaching scutellum.....*glaberrima*, Friese.
5. 9 mm. long; first two abdominal segments clear red.....
*sphæcodoides*, Friese.
 11.5 mm. long; first four abdominal segments red.....
*rufiventris*, Friese. ♀.
 11 mm. long; differs from *rufiventris* by the broader, blacker bands on abdominal segments 2 to 4.....
 *rufescens* Friese. ♂.

TETRALONIA, Spinola.

The species sent may be separated thus:

- Males.....1.
 Females.....3.
1. Clypeus yellow; antennæ long; hind femora with a tooth beneath.....*junodi*, Friese.
 Clypeus black; antennæ shorter.....2.

2. Thorax above with fulvous hair.....*nigropilosa*, Friese.
 Mesothorax with mainly dark brown hair.....
*nigropilosa*, var. *nigrosellata*, var. nov.
3. Hind tibiae and tarsi with black hair.....*nigropilosa*, Friese.
 Hind tibiae and tarsi with fulvous hair.....4.
4. Hair of scutellum mainly clear fulvous.....
*fulvomarginata*, sp. nov.
 Hair of scutellum mainly dilute chocolate, not at all
 fulvous.....*brunnescens*, sp. nov.

TETRALONIA JUNODI, Friese.

Males, Umgwavuma, Zululand, March, 1917 (E. W. Baxter).
 The labrum is not all yellow, but black with a large pale spot.

TETRALONIA NIGROPOLISA, Friese.

Males from Winklespruit, January, 1919 (C. N. Barker); female
 from same place and collector, 29th December, 1918.

TETRALONIA NIGROPILOSA, var. NIGROSELLATA, var. nov.

♂. Mesothorax and scutellum with very dark fuscous hair,
 giving the appearance of a black saddle; but anteriorly (widest in
 middle) the mesothorax is fulvous haired, as are the axillar region
 and the suture between mesothorax and scutellum. A very striking
 variety, but evidently not a distinct species.

Pinetown, 17th March, 1910 (C. N. Barker).

TETRALONIA FULVOMARGINATA, sp. nov.

♀. Length about 12 mm.; tegument of the densely punctured
 clypeus all black; tegulae testaceous; wings brownish-hyaline; disc
 of mesothorax and scutellum with dark fuscous hair, broadly
 surrounded by fulvous; bases of abdominal segments with greyish-
 white tomentum; fringe of fifth segment bright orange-fulvous, paler
 at sides; scopa of hind legs entirely golden. Extremely close to
T. braunsiana Friese, but with shorter flagellum, not red at tip;
 and differently coloured hair on thorax, hind legs and end of
 abdomen. The basal nervure exactly meets the nervulus.

Krantz Kloof, 2nd April, 1917 (H. W. Bell Marley).

TETRALONIA BRUNNESCENS, sp. nov.

♀. Length hardly 11 mm., but very thick set. Similar to *T. fulvomarginata* but smaller, with the following differences: Disc of mesothorax and scutellum with rather light chocolate coloured hair, narrowly surrounded by dull white, the scutellum with little white along posterior margin: face, occiput, cheeks and sides of metathorax with white hair, but a tinge of brown on vertex behind the ocelli; hind margins of abdominal segments strongly rufescent; first segment more closely and finely punctured, and its smooth apical margin narrower; fifth segment with darker red hair.

Malvern, Natal, January, 1916 (C. N. Barker).

THRINCHOSTOMA, Saussure.

Females.....1.
Males.....3.

1. First two abdominal segments red, broadly marked with black; first recurrent nervure meeting second transverso-cubital.....2.
First two abdominal segments black, with the hind margins pallid; first recurrent nervure joining third submarginal cell a short distance from its base.....*millari*, Ckll.
2. Hair on inner side of hind basitarsi pale chocolate; wings reddened, apical field not evidently dusky.....*torridum* (Smith).
Hair on inner side of hind basitarsi clear fulvous; wings with apical field strongly dusky.....*nomiæformis*, Ckll.
3. Larger; no patch of black hairs in submarginal cells..
.....*nomiæformis*, Ckll.
Smaller; a conspicuous patch of black hairs in submarginal cells.....*millari*, Ckll.

T. millari is very distinct, but it is doubtful whether *nomiæformis* can be separated as a species from *torridum*. I have a *torridum* from Smith's collection, and one from Durban (J. H. Bowker), is in the South African Museum collection recently submitted to me. These females differ from males of undoubted *nomiæformis* (Malvern, Natal, April, 1917, C. N. Barker; Eshowe, 1916, H. W. Bell Marley; Durban, 20th May, 1916, E. C. Chubb; and three from Mfongosi, Zululand, W. E. Jones), in the reddish wings without evident dark margin.

A female collected by W. E. Jones at Mfongosi, Zululand (South African Museum), agrees in the character of the wings with *nomiæformis*, and is placed as such in the table above. Yet it is by no means certain that the differences observed may not be ascribed to variation, and Mr. Barker notes on his Malvern male: "*T. nomiæformis*, query = male of *T. torridum*; both common insects in same resorts." It is possible that the male of *torridum*, if it is a valid species, would show structural characters separating it from *nomiæformis*.

NOTHYLÆUS, Bridwell.

This is a genus of African Prosopididæ recently (Proc. Hawaiian Ent. Soc. IV, 1919, p. 126), separated by Bridwell, to contain such species as *Prosopis heraldica*, Smith; *P. bevisi*, Ckll.; and *P. braunsi*, Alfken. The mandibles are simple and acute at apex (bidentate in true *Prosopis*), and there are various other characters. A subgenus *Anyleus*, Bridwell, includes a couple of species with the scutellum and postscutellum modified.

NOTHYLÆUS (ANYLÆUS), DENTIFERELLUS (Strand).

This was described from Delagoa Bay, some 300 miles up the coast, but a couple of males from Natal (Durban, 31st July, 1916, C. N. Barker; Umbilo, 18th February, 1917, L. Bevis), appear to belong here, though the wings are brownish and not pure hyaline, as Strand seems to infer. The scutellum has two yellow spots on elevated areas, and the postscutellum is bidentate. The face is cream-coloured and the supraclypeal mark is large.

PROSOPIS, Fabricius.

PROSOPIS MELANOSOMA, sp. nov.

♀. (Type). Length 5.5-6 mm.; entirely black, except that the flagellum is dusky reddish beneath. Head rather large and thick; face dull; clypeus high, its surface minutely rugose and sparsely punctured; two sharp keels between antennæ; front well punctured; mesothorax dullish, closely and finely punctured; scutellum flattened, somewhat shining, the punctures very distinct; area of metathorax large, well defined, coarsely sculptured, with a transverse median

ridge; pleura very finely punctured; wings dusky hyaline; stigma and nervures dark brown; recurrent nervures joining submarginal cells a short distance from their ends; abdomen dullish, impunctate, first segment with a small fringe of white hair on each side.

♂. Length about 5.5 mm.; slender, with very long antennæ, the flagellum dull ferruginous beneath; clypeus and lateral face-marks pale lemon-yellow, the clypeus narrowly edged with black above, below and at sides, except the lower lateral margins; lateral marks narrow, broadest opposite upper part of clypeus, tapering to a slender point at about level of antennal sockets; anterior tibiæ and basitarsi with a pale yellow line in front; middle and hind tibiæ brown, with the basal half of the basitarsi mainly creamy-white; extreme bases of abdominal segments inclined to be reddish or pallid. Mandibles bidentate.

The type female is from Durban, August, 1916 (C. N. Barker). Another female, received from the South African Museum, is from Knysna, Cape Colony, October, 1916 (L. Péringuey). The males are from Durban, August, 1916 (C. N. Barker). The sexes are associated because of the similar sculpture, and the fact that they were both collected at Durban in August. The black labrum and mandibles of the male and the venation separate the species from *P. longula*, Friese, from Rhodesia.

1 ALLODAPE, Lapeletier.

ALLODAPE MARLEYI, sp. nov.

♂. Length about 8 mm.; robust, head and thorax black with light yellow markings; legs black; abdomen chestnut red, first segment black except posterior margin (the edge of the black concave posteriorly), third segment infuscated, and segments beyond black with dark reddish margins; labrum and mandibles black; clypeus yellow; yellow lateral marks filling space between clypeus and eye nearly to top of clypeus, then suddenly narrowed and continued as a narrow band up orbits to about middle level of front; a narrow yellow stripe behind each eye; tubercles and margin of prothorax black; a small yellow mark on the translucent tegulæ; scutellum with a large crescent-shaped yellow mark, its anterior (concave) margin angulate in middle; antennæ and legs black; wings strongly reddish, with ferruginous stigma and nervures; hind trochanters dentate.

Krantz Kloof, Natal, 1st October, 1916 (H. W. Bell Marley). Close to *A. mediorufa*, Ckll, but the tegulae are hyaline, the face-marks are different, and the narrow shining groove at each side of clypeus of *mediorufa* is not present. The stigma is redder than in *mediorufa*, and the second submarginal cell is shorter.

ALLODAPE VITTATICEPS, sp. nov.

♀. Length about 8 mm.; similar to *A. marleyi*, but apparently not its female, as the wings are greyer and the second submarginal cell is longer. The first recurrent nervure joins the second submarginal cell at a distance from its base more than equal to half length of first transversocubital, but at a much less distance in *marleyi*. The lateral face marks are entirely band-like, but broader below, and their upper ends (nearly as high as middle ocellus) curve away from the orbits; the clypeus is black with a broad parallel-sided yellow band, which at its extreme upper end emits a hook-like process at each side; scutellum mainly yellow, but the posterior margin broadly black; hind tibiae on outer side with a patch of brilliant copper-red hair, only descending base of first abdominal segment red, and only fifth and sixth segments black; scape obscurely reddened at base and apex.

Umgwavuma, Zululand, March, 1917 (E. W. Baxter). This may be *A. rufogastra*, Lepeletier, described from "Cafrerie," although Lepeletier describes the abdomen as ferruginous, without mentioning any black. I have a male labelled "Cape," from F. Smith's collection, determined by him as *A. rufogastra*, and it has the abdomen black beyond the fourth segment, and the sides of the fourth black. The clypeus has a yellow band, broadening below; and there is a supra-clypeal yellow dot. Unfortunately this does not agree with the male as described by Smith in 1854; it was then stated that the clypeus of the male was entirely yellow, as in *A. marleyi*. The matter is further complicated by the existence of another species of *Allodape* at Algoa Bay, of the same immediate alliance. This insect, collected and given a manuscript name by Dr. H. Brauns, is very close indeed to *vittaticeps*, yet separable. My conclusion is, that we cannot be quite sure of *rufogastra* until comparisons can be made with the type; but *A. marleyi*, *vittaticeps*, the F. Smith supposed *rufogastra* and the Algoa Bay species are distinct from one another, though very closely allied.

ALLODAPE BEVISI, sp. nov.

♀. Length about 4.5 mm.; black, with very scanty white pubescence; face narrow, the orbits converging below; no lateral face-marks; clypeus very broad, cream-colour or pale yellowish, with a black pit on each side, so that the light area recalls a cup (with a long base) standing in a saucer; labrum pale reddish; mandibles ferruginous with black base; antennæ black, scape pale yellow in front; tubercles yellow; scutellum entirely black, dullish; tegulæ hyaline; wings hyaline, very faintly dusky; stigma very large, reddish brown; lower section of basal nervure vertical; first recurrent nervure joining extreme base of second submarginal cell; femora black with the knees red; tibiæ and tarsi bright ferruginous; abdomen broad, hind margins of segments dull brownish-testaceous.

Type from Umbilo, 26th August, 1914 (L. Bevis). Also Umbilo, 1916 (L. Bevis). Close to *A. maurula*, but easily known by the red tibiæ and tarsi.

The following key separates the species of *Allodape* in the last sending. Two species (A and B), which seem to be new, are represented by specimens which lost the abdomen in transit. I place them under the heading of abdomen black, as this was probably the colour. I hope they will be rediscovered, and if confirmed as new, described, by the local collectors. It is much regretted that we do not know what flowers these species of *Allodape* visit. It is probable that they have different habits, and not unlikely that they are oligotropic, that is, confined to particular genera or closely related genera of plants.

- Abdomen mainly red; scutellum largely yellowish (it is all black in *A. pyriferæ*, Ckll); larger species.....1.
 Abdomen black (lost in A and B).....2.
 1. Male; clypeus yellow.....*marleyi*, sp. nov.
 Female; clypeus with a yellow band.....*vittaticeps*, sp. nov.
 2. Clypeus with a white anchor-shaped mark, the arms of the T or anchor with downwardly projecting points (Pinetown, 29th October, 1916, H. W. Bell-Marley)..... sp. A.
 Clypeus not thus marked.....3.
 3. Broad robust forms, with linear lateral face marks; males...4.
 Small slender forms; no lateral face-marks.....5.
 4. Clypeus white, marked with an irregular black line down each side (Stella Bush, December, 1916, H. W. Bell Marley).....*stellarum*, Ckll., var.

- Clypeus buffy (probably altered by cyanide), with two dark dots (Durban, 31st July, 1916, C. N. Barker).....
*stellarum*, Ckll., var.
5. Tibiae red ; scape light in front.....*bevisi*, sp. nov.
 Tibiae not red.....6.
6. Light face-mark broadest below, eyes strongly converging ;
 male (Isipingo 18th March, 1917, H. W. Bell Marley).....
*maurula*, Ckll.
 Light face-mark broadest above ; females.....7.
7. Enlarged upper part of light face-mark about half as long
 (vertically) as wide (Krantz Kloof, 23rd July, 1916,
 H. W. Bell Marley).....sp. B.
 Enlarged upper part of light face-mark subquadrate, over
 half as long as wide.....8.
8. Hind margins of abdominal segments narrowly brown
 (Doonside, 1st and 13th January, 1917, L. Bevis).....
*maurula*, Ckll., var.
 Abdomen black without evident bands (Umbilo, 18th
 February, 1917, L. Bevis ; Durban, August, 1916, C. N.
 Barker).....*maurula*, Ckll.

HERIADES, Spinola.

The species seen from Natal may be separated thus :

- Males.....1.
 Females.....3.
1. Eyes green ; wings strongly brown ; flagellum very long.
*chlorops*, Ckll.
 Eyes not green ; flagellum not very long.....2.
2. Larger, fully 6 mm. long ; wings clear hyaline.....
*pellucidus*, sp. nov.
 Smaller, wings dusky.....*bevisi*, Ckll.
3. A strong keel down middle of clypeus.. *tricarinatus*, sp. nov.
 No such keel on clypeus.....4.
4. Larger, about 7·3 mm. long ; first recurrent nervure joins
 second far from base.....*marleyi*, Ckll.
 Smaller, about 6·3 mm. long.....5.

5. A spine at each side of metathorax ; punctures of mesothorax fine.....*punctulata*, Ckll.

No such spines on metathorax ; punctures of mesothorax coarse.....*chubbi*, Ckll.

A female from Smithfield, O.R.C. (Kannemeyer), received from Dr. L. Péringuey, and determined by Friese as *H. argentatus*, Gerst., runs in the above table to *chubbi* ; but is larger, with the wings not nearly so brown, and the eyes green (brown in *chubbi*).

HERIADES CHUBBI, Cockerell.

Females. Pinetown, 11th December, 1916 (H. W. Bell Marley).

HERIADES BEVISI, Cockerell.

Males. Durban, 31st July, 1916 (C. N. Barker).

HERIADES TRICARINATUS, sp. nov.

♀. Length 7·5–8 mm. ; black, with the usual whitish hair, forming very slender bands on abdomen ; ventral scopa silvery-white ; wings conspicuously dusky ; clypeus with a very prominent keel, which extends its whole length, and also up the supraclypeal area, which is tricarinate, having a keel on each side ; sides of face densely covered with pure white hair ; maxillary palpi three-jointed ; basal declivity of first abdominal segment bounded by a strong rim. Very close to *H. clypeatus*, Friese, from the Transvaal, but larger, with dusky wings. Also very close to *H. ekuiensis*, Ckll., from Benguela, but easily separated as follows :

Punctures of scutellum about one-fourth larger than on mesothorax, but similar ; surface of mesothorax granular between the punctures, not polished, the intervals not over one-third diameter of puncture.....*tricarinatus*.

Punctures of mesothorax, except anteriorly, smaller, the intervals over half diameter of a puncture ; scutellum cancellate with immense punctures.....*ekuiensis*.

H. tricarinatus is represented by three females from Durban, 24th December, 1916 (C. N. Barker).

HERIADES PELLUCIDUS, sp. nov.

♂. Length 6.5–7 mm.; black, of the usual form, with pure white hair, forming slender bands on abdominal segments; head thick and quadrate; eyes black; facial quadrangle much longer than broad; antennæ black; face and lower part of front with much long white hair; front with very dense large punctures; vertex with scattered punctures on a polished surface; mesothorax and scutellum shining, with very large not very dense punctures; tegulæ piceous, punctured; wings clear hyaline, stigma and nervures black; recurrent nervures joining second submarginal cell close to base and apex respectively; legs with abundant white hair; abdomen shining, strongly and evenly but not very densely punctured; basin of first segment bounded by a sharp rim; hind coxæ with a short apical tooth.

Three specimens were collected at Bellair, Natal, 31st December, 1918 (E. C. Chubb). They were obtained from a hole in a wooden post. One, which has unfortunately lost its head, is smaller than the other two. Compared with *H. bevisi*, the vertex is much more sparsely punctured, on a polished surface.

HALICTUS, SUBGENUS PATELLAPIS, Friese.

Friese, in 1909, proposed a subgenus *Patellapis* for a group of *Halictus*, resembling in a general way the European *calceatus*, *albipes*, etc., but noteworthy for the large rounded apical plate on abdomen of the male (seventh segment). This is not in itself a very peculiar character; it may be found in other *Halicti*, and is especially conspicuous in a group of Australian species (*H. cambagei*, Ckll., and allies). Friese described three species of *Patellapis*, all from Steinkopf in Namaqualand. In all, the clypeus of the male has the tegument entirely black, wherein they differ at once from the European *calceatus* and *albipes*. Strand, in 1911, added a species *H. ceruleodorsatus*, from Ruwenzori; it differs from the others especially in having the abdomen above, except the first segment, more or less distinctly bluish. The type of *Patellapis* is herewith designated as *P. schultzei*, Friese, the first species described. I possess a male from the original lot. In the collection from Natal I find three species which clearly fall in *Patellapis* according to the diagnosis; but they also differ from true *Halictus* in the long and very slender tongue, in the manner of the genus *Nesohalictus*, Crawford, from the Malay Archipelago. *Nesohalictus* also has the rounded apical plate, but the hind spur of the male is dentate, which is not true of the Natal males. *Patellapis*

schultzei seems not to have a specially lengthened tongue, and neither it nor *Nesohalictus* have sub-apical ventral spines on the abdomen, such as I find in the Natal males. By reason of the long slender tongue, these insects also approach *Thrinchostoma*, and there are other African *Halicti* (*H. patricius*, Strand; *H. flavofasciatus*, Friese) which more or less resemble that genus.

I should be inclined to regard the three Natal species as constituting a distinct genus, very close to *Nesohalictus*, or even as members of that genus; but *Patellapis* connects them with *Halictus*, and on the basis of its leading character, should include them. I therefore describe them under *Halictus*, leaving a more precise classification to the future, when more material shall have accumulated. They are *H. harveyi*, *H. trimeni* and *H. bowkeri*.

HALICTUS HARVEYI, sp. nov.

♂. Length about 7 mm.; black, robust for a male, with very scanty dull white hair, partly dark fuscous on mesothorax and scutellum; malar space linear; clypeus prominent, with shallow punctures running more or less in grooves; tongue long, apically linear; front dull, but vertex shining; antennæ rather long and thick, the flagellum moniliform, its apical part very obscurely brownish beneath; mesothorax and scutellum dull, with fine punctures; area of metathorax sharply defined, finely wrinkled; at each side of the basal area posteriorly is a shining space regularly crossed by plicæ; posterior truncation sharply defined at sides; tegulæ chestnut-red, black at base; wings dusky hyaline, nervures and stigma piceous; first recurrent nervure meeting second transversocubital; legs black, with the knees, the anterior tibiæ in front, all the tibiæ at apex, and all the tarsi, bright chestnut-red; hind spurs not dentate; abdomen broad, shining, with excessively minute but very numerous punctures; no distinct hair-bands; a broad rounded apical plate, and short lateral sub-apical ventral teeth.

Durban, 9th May, 1918 (C. N. Barker). Two specimens. A number of years ago I named a series of Australian *Halicti* after early explorers and noted scientific men of that country. I will follow a similar method in providing names for the S. African species.

HALICTUS TRIMENI, sp. nov.

♂ (Type). Length 8-8.3 mm.; black, robust, with rather short thick antennæ, the flagellum faintly brown beneath; tongue about or nearly as long as head, its apical half linear; mandibles dark

reddish apically; malar space short but distinct; clypeus strongly produced, snout-like, the upper part dull, with scattered punctures, the lower part more shining and irregularly malleate, with a strong median sulcus, the lower margin with a shining transverse groove; front dull, glistening at sides; ocelli in a curved line; head and thorax with dull white hair, not dense on face (abundant and dense in *H. schultzei*), no dark hair on thoracic dorsum; mesothorax dull, closely and finely punctured; scutellum dull, faintly bigibbous; area of metathorax well defined, shining and with very strong plicæ; posterior truncation sharply defined at sides; tegulæ piceous; wings brownish-hyaline, stigma and nervures brown; first recurrent nervure joining second transversocubital, or the apical corner of second submarginal cell; marginal cell obtuse, almost truncate, at apex, with a little appendicular projection; legs black, with pale hair, the small joints of the tarsi chestnut-red; abdomen broad, the hind margins of the segments broadly depressed; surface shining, with extremely minute punctures; no hair-bands, but a patch of pale hair at each side of base of second and third segments; apical plate large and rounded; sub-apical ventral spines, and a large median elevation on sixth ventral segment.

♀. Similar, but more robust; bases of abdominal segments 2 to 4 with bands of pale greyish tomentum, that on 2 broad at sides but interrupted in middle, on 3 very broad and of uniform width, on 4 often concealed; flagellum short and entirely black; discs of mesothorax and scutellum with a good deal of black hair; hind tibiæ with black hair on outer side; hind basitarsi with pale ferruginous hair on inner side; hind spur long, with nodular teeth, a large one sub-basally, and three very little ones beyond; caudal rima fringed with pure black hair.

Durban, 26th May, 1918, two of each sex (C. N. Barker). A small female (anterior wing 6 mm.) from Pinetown, 26th November, 1916 (H. W. Bell Marley), looks distinct, but has no distinctive characters except its size. It may stand as variety *α*.

HALICTUS BOWKERI, sp. nov.

♂ (Type). Length 8.5-9 mm.; black, robust, looking like a female, with short (not at all moniliform) antennæ, the flagellum obscurely reddish-brown beneath; head and thorax with long thin greyish-white hair, not at all dense on face; head very large, somewhat broader than long, face very broad; malar space linear;

mandibles very long, falciform, chestnut-red in middle; clypeus with a sericeous surface, and only minute indistinct punctures, the apical middle depressed; front somewhat glistening; mesothorax dullish, hairy, with scattered minute punctures: posterior part of mesothorax and scutellum more shining, but not polished; area of metathorax with strong but irregular and often broken plicæ; posterior truncation sharply defined at sides; tegulæ rufopiceous; wings hyaline, faintly dusky, stigma and nervures dilute brownish, the stigma quite pale; marginal cell ending as in *H. trimeni*; first recurrent nervure meeting second transversocubital: legs black, with small joints of tarsi chestnut-red; abdomen very broad, shining, with excessively minute punctures, hind margins of segments rufescent; no hair-bands, but thin pale hair at sides of segments; apical plate rounded, only moderately large; large sub-apical ventral spines.

♀. Similar, but head and mandibles ordinary, not enlarged; bases of abdominal segments with bands of greyish tomentum, as in *H. trimeni*. Readily known from *H. trimeni* by the entirely pale hair of mesothorax and scutellum; the surface of the scutellum is dull. The hind spur is of the same type as that of *trimeni*, but the enlarged basal tooth is narrow and distinctly spiniform. The stigma is amber colour.

Winklespruit, Natal, both sexes, 29th December, 1918, a female 2nd January, 1919 (C. N. Barker).

The following species belong to other groups of *Halictus*.

HALICTUS FARQUHARI, sp. nov.

♂ (Type). Length about 9 mm.; black, rather slender, with rather abundant erect greyish pubescence; legs dark reddish-brown, anterior knees and tibiæ in front redder; head oblong, longer than broad, facial quadrangle very much longer than broad; mandibles red sub-apically; clypeus entirely black, projecting, polished, with large punctures; head considerably produced above the eyes; flagellum long and slender, bright ferruginous beneath; front dull and granular; mesothorax and scutellum shining, with distinct fairly large punctures; metathorax very hairy except the basal area, which is covered with fine vermiform wrinkles; posterior truncation not sharply defined at sides; tegulæ rufous; wings hyaline, faintly dusky at apex; stigma and nervures dull ferruginous; first recurrent nervure joining apical corner of second submarginal cell; abdomen without distinct punctures, dullish, more shining toward apex; bases of first three

segments broadly clothed with grey hair, third with a hair-band in sub-apical depression, fourth and fifth with sub-apical bands; no sub-apical ventral spines.

♀. Similar, but more robust, with the mesothorax dullish, the head broader, mandibles dark, the short flagellum red only apically beneath. The tarsi are reddish, and the hind spur has five strong spines. The second and third abdominal segments have dense white basal bands. Superficially, this is very like *H. bowkeri*, but is easily separated by the disc of scutellum shining (dull in *bowkeri*). *H. diversus*, also from Natal, has the hind spur with three teeth. Male *diversus* has a yellow apical band on clypeus.

Type (male) from Durban, 8th October, 1916 (H. W. Bell Marley). Females; Umbilo, 14th February, 1917 (L. Bevis), Krantz Kloof, 23rd July, 1916 (H. W. Bell Marley). This is a true *Halictus*, but resembles the *Patellapis*-like series in having the male clypeus black without a yellow band.

HALICTUS LAYARDI, sp. nov.

♂ (Type). Length nearly 7 mm.; rather slender, black, with pale ochreous pubescence, long and white on cheeks, anterior trochanters, and lower part of mesopleura; all the tarsi, and anterior tibiae in front, clear ferruginous; apical band on clypeus, labrum and stripe on mandibles pale yellow or whitish; tubercles black; head broad, eyes strongly converging below; black part of clypeus shining and finely punctured; antennae very long, joints 3 to 10 red or partly red beneath; fourth joint at least twice as long as third, fifth equal to fourth; front entirely dull; mesothorax dull, appearing granular from very fine punctures, a couple of thin oblique patches of pubescence anteriorly (the same in female); scutellum bigibbous, the bosses more or less shining; area of metathorax polished and shining, with well-separated plicae, at sides and posteriorly becoming oblique; sides of metathorax with oblique striae; posterior truncation ill-defined; tegulae rufous with black base; wings hyaline, slightly dusky, nervures and stigma rather dark rufous; first recurrent nervure meeting second transversocubital; third submarginal cell short, no longer than high; abdomen shining, without distinct punctures, bases of segments 2 and 3 with continuous bands of greyish tomentum; a fairly large rounded apical plate, but no sub-apical ventral spines.

♀. Size and appearance of the male, but with the usual short antennae, the flagellum rufous beneath or (var. *a*) black, faintly rufous

apically. Mesothorax distinctly margined with pale ochreous hair, and post-scutellum densely covered with the same. Plicæ at base of metathorax short and feeble, and the smooth surface beyond not so polished as in male. Fourth abdominal segment with much pale hair. Hind spur with a few long spines.

Type (male) from Winklespruit, Natal, 4th January, 1919, three specimens (C. N. Barker). Females from Umbilo, 10th February, 1917 (L. Bevis), and Durban, 7th & 31st July, 1916, and 4th December, 1918 (C. N. Barker).

Although there is a marked difference in the base of metathorax, I think the sexes are correctly associated, as the venation exactly agrees (and differs from other possible candidates for association), and the hair on thorax and characters generally are alike. The var. *a* is from Durban. The female is distinguished from other Natal species by the small size, dark legs and dull mesothorax; the male by the red tarsi and ochreous hair of thorax, combined with a pale-banded clypeus.

HALICTUS BURNUPI, sp. nov.

♀. Length 5.5 mm.; not very robust; head, mesothorax and scutellum very dark olive green; metathorax dull black; legs black, with pale hair; abdomen shining dark brown, without hair-bands, the concealed bases of the segments pallid. Mandibles reddish subapically; clypeus somewhat shining but not polished, the punctures indistinct; front somewhat shining; antennæ black; thorax small, with thin white hair; area of metathorax appearing broadly semilunar, entirely dull and rough, but not plicate; tegulæ small, rufopiceous; wings dusky-hyaline, stigma and nervures brown; first recurrent nervure joining second submarginal cell some distance before its end; outer transversocubital and recurrent weak but distinct; hair of abdomen thin and sparse. Microscopical characters: punctures of clypeus very sparse, on a minutely wrinkled or tessellate surface; front densely minutely wrinkled, with minute shallow punctures; mesothorax and scutellum minutely tessellate, with sparse very minute punctures; area of metathorax with no sharp rim, its surface extremely minutely cancellate, and with weak irregular plicæ (not noticed under a lens); posterior truncation not sharply defined; tegulæ impunctate; hind spur with two very large obtuse spines.

Durban, 24th October, 1918 (C. N. Barker). Known among the Natal species by the small size, green mesothorax; venation and hind spur as described. It is referable to the subgenus *Chloralictus*.

HALICTUS MOFFATI, sp. nov.

♀. Length about 7 mm.; anterior wing 5.5 mm.; very robust, with broad abdomen, but head ordinary; black, including antennæ, legs and tegulæ; head and thorax with thin white hair, bases of abdominal segments with bands of white tomentum, conspicuous on second; facial quadrangle longer than broad; sides of face densely covered with greyish-white hair; mandibles with a conspicuous spot of chestnut-red in middle; clypeus shining, distinctly punctured, the upper part with a longitudinal ridge or keel, the lower with a broad flattened area; front dull, vertex shining; mesothorax dull, somewhat shining laterally, with sparse very distinct punctures; scutellum shining: truncation of metathorax large and sharply defined all round, sloping so as to greatly reduce the basal dorsal area, the basal area a mere transverse band crossed by plicæ; tegulæ with large punctures; wings dusky, nervures and stigma dark fuscous, the latter reddened in middle; marginal cell truncate at end; second submarginal narrow, much higher than long, receiving the first recurrent nervure at its apical corner; third submarginal about twice as broad as second; outer recurrent and transversocubital weakened but distinct; hind tibia with much silver-white hair; hind spur with a long obtuse spine, followed by three rounded teeth, the first large (a section of a circle), the second smaller, the third scarcely visible; abdomen moderately shining, very finely punctured; caudal rima fringed with pale, slightly yellowish hair.

Doonside, 17th January, 1917 (A. L. Bevis). A singular species, recognisable among the Natal forms by the black tegulæ, white band at base of second abdominal segment, distinctly punctured mesothorax and especially the peculiar metathorax. Two specimens were obtained.

HALICTUS PHILIPPI, sp. nov.

♀. Length about 7.2 mm., anterior wing 6.1 mm.; black, with the hind margins of abdominal segments suffusedly reddish-brown; head and thorax with much pale grey hair, short on mesothorax, on scutellum long and more or less fuscous; head broad; mandibles rufescent in middle; clypeus shining, with irregular sparse punctures; front dull, shining just below ocelli; antennæ black, the flagellum bright rufous beneath apically; mesothorax dullish, with minute punctures, median groove very deep and distinct; scutellum shining on disc; post-scutellum large, with dense moss-like tomentum; area of metathorax rather poorly defined, glistening, with many fine

irregular plicæ; posterior truncation not sharply defined; tegulæ piceous with a rufescent spot; wings hyaline, faintly dusky, stigma and nervures dusky reddish-brown, the outer recurrent and transverso-cubital pale and weak, but readily visible; second submarginal cell large, nearly square, receiving the first recurrent nervure at its apical corner; third submarginal short, not very much larger than second; legs dark reddish-brown, with the hind tibiæ on inner side, and tarsi in large part, ferruginous, the hind basitarsi red with a dusky cloud on apical half; tarsi on inner side with very brilliant orange-ferruginous hair, a line of copper-red hair on inner side of middle tibiæ, and one of paler hair on middle femora basally beneath; hind spur pectinate with about six dark teeth; abdomen shining, impunctate, microscopically transversely lineolate-reticulate; bases of segments with bands of greyish-white tomentum, dense and even on second segment, less distinct on the others.

Umbilo, 18th February, 1917 (L. Bevis). A rather ordinary species, known among the Natal forms by the partly red legs, dusky reddish-brown stigma, mainly dark flagellum, etc. It is not so large as *H. diversus*, Smith, and the hind spur is different.